

Areas of Concern

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**Initial
Risk**

**Standards &
Discipline**

Aviation Operations

**Ex
High**

Vehicle / Convoy Operations

**Ex
High**

Weapons Handling

**Ex
High**

Fire Hazards

**Ex
High**

Drowning Hazards

**Ex
High**

Heat Injuries

**Ex
High**

Electrical Mishaps

**Ex
High**



Low Risk



Moderate Risk

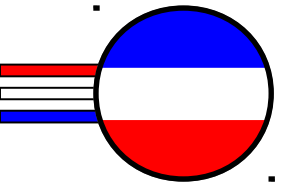


High Risk



Extremely High Risk



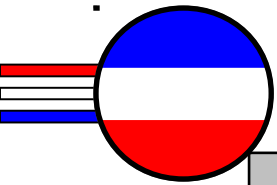


Areas of Concern

Areas of Concern		Initial Risk
Standards & Discipline	Equipment Safety	Ex High
	Hurricane Debris	Ex High
	Lightning Strikes	Ex High
	Sanitation and Hygiene	Ex High
	Bivouac Safety	High
	Chemicals and Fuels Exposure	High

 Low Risk
  Moderate Risk
  High Risk
  Extremely High Risk





Aviation Operations

POTENTIAL RISKS

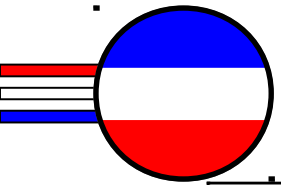
- Catastrophic accident
- Impact on mission accomplishment
- Loss of human and materiel resources
- Potential injuries to civilian personnel

CONTRIBUTING FACTORS

- Heavily saturated airspace
- Mixed operations of multi branch aircraft
- Hazards to flight (wires, antennas, etc.)
- Overwater operations
- Inadequate crew endurance
- Operations into/out of unsurveyed LZs/PZs
- Unruly/Anxious crowds
- Coastal/Summer weather factors
- Possible contamination of fuel sources
- Inadequate maintenance facilities
- Unit/Task organization changes
- High OPTEMPO due to actual/perceived urgency of situation.
- Refuel operations
- Sling load operations

CONTROLS

- Establish a Flight Coordination Center and designate traffic deconflicting routes
- Conduct concise and detailed mission briefings
- Apply proper risk management procedures and ensure approval at the appropriate level
- Maintain positive flight following for each aircraft
- Use the crawl-walk-run approach for each task and mission
- Establish and maintain a hazards to flight reporting system
- Designate PZs and LZs and record information on each one (hazards, landing and takeoff axis, etc)
- Develop and follow a crew endurance program tailored to the mission
- Ensure proper ALSE in on board to include water survival gear
- Limit night flight operations to emergency only
- Develop Inadvertent Instrument Meteorological Recovery Procedures
- Ensure POL personnel follow established fuel testing and aircraft refueling procedures



Vehicle / Convoy Operations

POTENTIAL RISKS

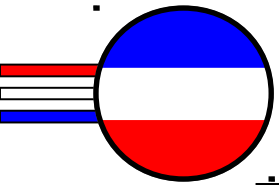
- **Vehicle accidents**
 - Rollovers/Collisions/Personnel
- **Loading and unloading (forklifts)**
- **POL spills**
- **Back strains and muscle strains**
- **Emergency repair**
- **Snipers**
- **Vehicle / pedestrian accidents**

CONTRIBUTING FACTORS

- **Haste**
- **Fatigue**
- **Lack of familiarity with roadways**
- **Not using PPE**
- **Over estimating**
- **Weather**
- **Road conditions/traffic/signage**

CONTROLS

- **Speed limit control**
- **Mandatory assistant driver**
- **Coordinate with State Patrol**
- **Load Plans**
- **Safety briefings**
- **Ground guide**
- **Spill kits**
- **Immediate notification to CoC**
- **Training and proper lifting techniques**
- **Emergency signaling systems**
- **Blocking vehicle**
- **In high risk areas full combat gear and Kevlar**
- **Maintain troop integrity during movement**



Weapons Handling

POTENTIAL RISKS

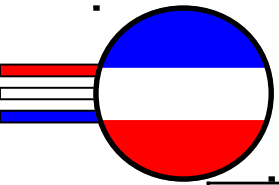
- **Negligent discharges**
 - ✓ Lack of muzzle awareness
 - ✓ Insufficient training
 - ✓ Ineffective supervision
 - ✓ Negligence
 - ✓ Inattentiveness
 - ✓ Indiscipline

CONTRIBUTING FACTORS

- **Operational pace**
- **Frequent changes in weapons control status / operating environment**
- **Complacency**
- **Increased access to weapons & munitions**
- **Non-standard conditions**
- **Conflicting procedures in Soldiers Manual of Common Tasks, TMs & FMs**

CONSIDERATIONS

- **Train to Army standards for clearing weapons**
- **Leader engagement & enforcement of controls**
- **Pre-deployment review of weapons handling & procedures**
- **Establish & disseminate rules of engagement & weapons status levels for mission profiles & troop locations**
- **Train & certify ammunition handlers & supervisors FC_REG_350-10_Extrac**
- **Install clearing barrels with instructions**
- **Thorough redeployment shipment checks**
- **Conduct appropriate weapons training**



Fire Hazards

POTENTIAL RISKS

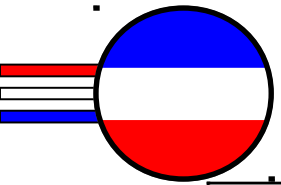
- Ruptured gas lines
- Structure fires
- Vehicle fires
- Carbon monoxide poisoning
- Explosions

CONTRIBUTING FACTORS

- Gas lines not visible
- Utility companies overwhelmed
- Arson
- Use of field expedient light and heat sources

CONTROLS

- Use only battery powered flashlights or available generator powered lights
- Signage of areas not considered safe
- Training from utility companies
- Let Search and Rescue do their job
- Assume all ruptured gas lines are lethal
- Use proper fire suppression
- Stay out flooded structures



Drowning Hazards

POTENTIAL RISKS

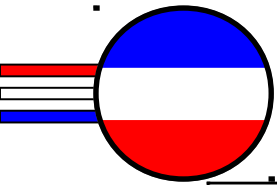
- Levees not stabilized
- Sink Holes in Roads
- Water deeper than appears
- Water may have an undertow
- Downed power lines in water
- Falling from craft
- Injury from boat propellers
- Boat sinking

CONTRIBUTING FACTORS

- Water
- Depth of water not clear
- Hidden hazards not cleared
- Unfamiliarity with area
- Unfamiliarity with boat operation
- Proximity to moving boats by personnel

CONTROLS

- Soldiers use flotation devices in vehicles/water craft and working near water.
- Identify weak and non-swimmers / Drown proofing
- Buddy system
- Train in rescue techniques
- Radio communications to ensure all soldiers are aware of areas affected by broken levees.
- Wait for engineers to determine if road or bridge is safe.
- Soldiers let Search and Rescue do their mission and avoid entering water.
- Work with utility companies before entering an area to determine if power lines/gas lines are a risk factor



Heat Injuries

POTENTIAL RISKS

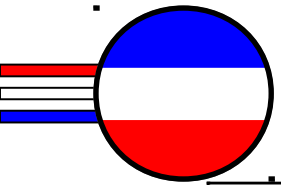
- Potential high heat index
- Physical Exertion
- Repeat Exposure/Poor Recovery
- Reduced Water Supply
- Sun Exposure

CONTROLS

- Increased Supervision
- Water Stations
- Transportation Plan for Most Distant evacuation camps
- Established No-Go Criteria ????
- Hydration all the time
- Supplement to maintain electrolyte balance
- ID, Monitor & Assist High Risk Personnel
- Use Buddy System
- Use Sunscreen
- Wear Appropriate Clothing
- Increase Travel Time-Line
- Shade Soldiers When Possible
- If One to Two Individuals Suffer Heat Injury, Stop and Reassess
- Cooling Tents

CONTRIBUTING FACTORS

- Fatigue: Acute and Chronic
- Previous Heat Injuries
- Physical Conditioning
- Poor living conditions



Electrical Mishaps

POTENTIAL RISKS

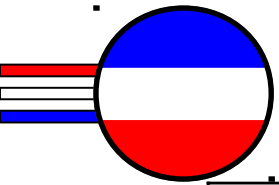
- **Downed Power Lines During hurricane and future storms**
- **Tents Erected Under Power Lines**
- **Sagging of Lines Over Existing Tents**
- **Overloading of Electrical Circuits in the Living Areas which potentially could cause a fire**
- **Poor wiring**

CONTRIBUTING FACTORS

- **Limited Open Space with no Power Lines**
- **Lack of Awareness**
- **Everyone will want some creature comfort**
- **Poor contractors/haste**

CONTROLS

- **Assume that All downed lines are lethal**
- **Avoid erection of tents or other structures under power lines**
- **Antenna Erection Guidelines:**
 - **Determine Height of Antenna**
 - **Add Antenna Length and Length of Tower Mast**
 - **Double Figure**
- **Do Not Overload Circuits...Stay Within Amp Limits**
- **Use UL Approved Appliances Only**
- **Avoid contact with water near downed power lines**
- **Make sure electrical switches are off in unstable buildings**
- **Ensure proper grounding**
- **Training from trained Power Co personnel**
- **Conduct daily inspection of living quarters**



Equipment Safety

POTENTIAL RISKS

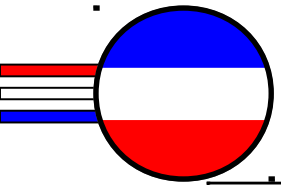
- Chainsaw kickbacks
- Improper use of equipment leading to injury or death
- Loss of hearing/eye injuries
- Fire from improper fuel

CONTRIBUTING FACTORS

- Haste
- Lack of familiarity
- Not using PPE
- Over estimating abilities

CONTROLS

- Inspect for serviceable condition and wear PPE
- Training on use of equipment
- Realistic timelines for mission accomplishment
- Proper fuel and fuel containers
- Proper equipment maintenance
- Use trained professionals to operate equipment



Hurricane Debris

POTENTIAL RISKS

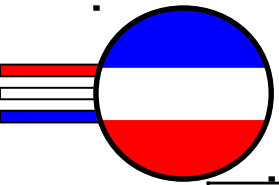
- Puncture wounds, cuts
- Tetanus
- Buildings collapsing entrapping Soldiers
- Mold - health reactions

CONTRIBUTING FACTORS

- Everywhere there is debris of all types of substances
- Contamination

CONTROLS

- Use flashlights
- Wear PPE
- Buddy system in case a Soldier becomes trapped
- Monitor for mold and treat personnel appropriately
- Practice good hygiene
- First aid training
- Ensure Soldiers' immunizations are current



Lightning Strike

POTENTIAL RISKS

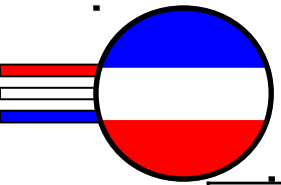
- High Chance of Thunderstorms
- Location of Soldiers
 - Trees
 - Structures
 - Aquatic Areas
- Inadequate Warning
- Failure to Follow Instructions / Supervision
- Structural fires

CONTRIBUTING FACTORS

- Dispersion of Soldiers
- Separation of Soldiers From Leaders
- Lack of Training / Experience
- Civilian grounding not available
- Inadequate firefighting and suppression systems

CONTROLS

- Increased Supervision
- Use Buddy System
- Use of portable lightning detectors
- Stay or Go Indoors if possible
- If Outdoors, Avoid Highest Object or High Ground
- Stay in vehicle if traveling
- Discontinue Use of cell phones
- Get out of the Water
- Don't Use Metal Objects if Outdoors
- Stay Clear of All wires, antennas or objects connected to wires
- Ensure that generators and fueling equipment are properly grounded
- Fire extinguishers
- CPR/first aid training
- Maintain communications with higher



Sanitation and Hygiene

POTENTIAL RISKS

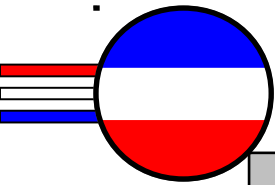
- **Illness and disease**
 - Viral & bacterial contamination
 - Vector borne diseases
 - Animal bites

CONTROLS

- **Practice good hygiene**
- **Use only approved water sources**
- **Coordinate water quality testing with medical personnel**
- **Keep open sores and cuts covered and clean - Seek medical attention at first sign of infection**
- **Field sanitation units**
- **Coordinate with Public Health Officials**
- **Ensure that immunizations are current**
- **Eat only approved foods in approved locations**
- **Avoid contact with animals of all kinds**
- **Coordinate proper disposal of dead animals**

CONTRIBUTING FACTORS

- **Sanitation / sewer services absent or inadequate**
- **Lack of potable water / water contamination**
- **Mosquito breeding in standing water**
- **Spoiled or contaminated food**
- **Dead animals**
- **Potentially dangerous animals**



Bivouac Safety

POTENTIAL RISKS

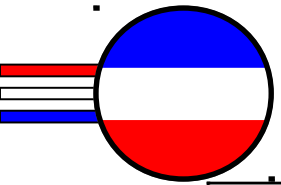
- **Tent Fires**
- **Electric Shock / electrocution**
- **Trip hazards**
- **Puncture hazards**

CONTRIBUTING FACTORS

- **Misuse of electrical equipment**
- **Overloading circuits**
- **Hasty construction / setup**
- **Inattention to high power lines**
- **Lack of understanding**
- **Electricity and standing water**

CONTROLS

- **Prohibit cooking in tents not designated and configured for cooking**
- **Enforce safe limits on power circuit use**
- **Avoid setting up around high power lines**
- **Initiate site survey / dig permit process**
- **Avoid outdoor use of indoor power cords**
- **Avoid use of or protect temporary electrical lines in high traffic areas**
- **Enforce no smoking policy in or next to tents - provide but cans**
- **Clear area around tents of flammable & combustible material**
- **Cap tent pegs to avoid puncture**
- **Enforce house keeping**



Chemicals and Fuels Exposure

POTENTIAL RISKS

- Burns to skin, muscles, eyes, respiratory system
- Skin rashes
- Dizziness, Nausea, Excitability, Weakness/fatigue
- Structure fires
- Vehicle fires
- Explosions

CONTRIBUTING FACTORS

- Destroyed storage areas and facilities
- Agricultural chemicals
- Fuel spills from storage tanks are likely

CONTROLS

- Use only battery powered flashlights or available generator powered lights
- Signage of areas not considered safe
- Training from Hazmat teams
- Let Search and Rescue do their job
- Use proper fire suppression
- If water is suspected of being contaminated with hazardous chemicals use protective outer clothing, goggles, gloves and boots to avoid contact with water.
- Stay out flooded structures



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Residual Risk

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Fire Hazards

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Drowning Hazards

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Heat Injuries

High

Electrical Mishaps

High



Low Risk



Moderate Risk



High Risk



Extremely High Risk



FORSCOM





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Standards & Discipline	Equipment Safety	High
	Hurricane Debris	High
	Lightning Strikes	High
	Sanitation and Hygiene	High
	Bivouac Safety	Mod
	Chemicals and Fuels Exposure	Mod

 Low Risk
  Moderate Risk
  High Risk
  Extremely High Risk